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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/612,649	07/08/2000	Tetsuji Tsukamoto	9915125(018)	9299
7590 03/04/2004			EXAMINER	
Moonray Kojima Box 627 Williamstown, MA 01267			VARGAS, DIXOMARA	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/612,649

Applicant(s)

TSUKAMOTO, TETSUJI

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 18, 23, 28 and 33 are objected to because of the following informalities:

The recitations “so that” and “thereby” renders the claim indefinite. The phrase "so that" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). In addition, it has been held that the functional "thereby" statement does not define any structure or method step and accordingly can not serve to distinguish. In re Mason, 114 USPQ 127, 44 CCPA 937 (1957). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 18-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The recitation “thereby prevent reduction of slices during a repetition time period and improve imaging efficiency” is considered as not enabling since the specification does not disclose how this step is

Art Unit: 2859

accomplished to obtain the result of an improved imaging efficiency so that one of ordinary skill in the art could understand the invention that causes said result.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 18-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation “thereby prevent reduction of slices during a repetition time period and improve imaging efficiency” is indefinite since it is not positively recited.

6. Claims 18-37 provides for the use of a pulse adjusting means that prevent reduction of slices during a repetition time period and improve imaging efficiency, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 18-37 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

7. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 18, 19, 23, 24, 28, 29, 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori Kazuo (JP 05-317287).

With respect to claims 18, 23, 28 and 33, Mori discloses a spin excitation method for exciting spins within an object to be imaged by a pulse sequence containing RF pulses, said method comprising the steps of (Abstract): predicting a specific absorption rate of said object to be imaged in executing said pulse sequence (Paragraph 5); comparing said predicted specific absorption rate with a predetermined limit of a standard specific absorption rate; and adjusting at least one among number of pulses, pulse waveform and pulse width of said RF pulses in said pulse sequence so that said predicted specific absorption rate value is within said predetermined limit (Paragraphs 19-26), and thereby prevent reduction of slices during a repetition time period and improve imaging efficiency (Paragraphs 27-31).

10. With respect to claims 19, 24, 29 and 34, Mori discloses the step wherein said RF pulses to be adjusted are 180° pulses (Figure 3).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2859

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 20, 21, 25, 26, 30, 31, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori Kazuo (JP 05-317287) in view of Pauly (US 5,280,245).

With respect to claims 20, 21, 25, 26, 30, 31, 35 and 36, Mori discloses the claimed invention as stated above in paragraph 8 except for the adjustment of the pulse waveform of said RF pulses is modification from a Shinnar-Le Roux (SLR) pulse waveform to a sinc pulse waveform obtained by filtering said SLR pulse waveform. However, Pauly discloses using Shinnar-Le Roux (SLR) for modifying the pulses (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Pauly's teachings for using SLR modifications with Mori's spin excitation method for the purpose of adjusting the refocusing pulses with a phase compensation as shown by Pauly (Column 3, lines 17-67).

13. Claims 22, 27, 32 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori Kazuo (JP 05-317287) in view of Pauly (US 5,280,245) and in further view of Moonen et al. (US 5,570,019).

With respect to claims 22, 27, 32 and 37, Mori and Pauly disclose the claimed invention as stated above in paragraphs 8-11 except for employing a Hamming filter for filtering. However, Moonen discloses the use of a Hamming filter (Column 7, lines 19-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Moonen's teachings about a Hamming filter with Mori and Pauly's spin excitation method for

Art Unit: 2859

the purpose of improving the RF frequency profile by eliminating any artifacts or undesirable component from the signal.

***Response to Arguments***

14. Applicant's arguments with respect to claims 18-37 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses NMR systems with SAR calculations in order to control the RF exposure of the patient.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252.

The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dixomara Vargas  
Art Unit 2859  
February 20, 2004



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